phenomena of this decomposition will be reserved for its proper place in the next series of these Researches.

177. Notwithstanding the extreme dissimilarity between sulphuret of silver and gases or vapours, I cannot help suspecting the action of heat upon them to be the same, bringing them all into the same class as conductors of electricity,, although with those great differences in degree which are found to exist under common circumstances. When gases are heated, they increase in conducting power, both for common and voltaic electricity (7); and it is probable that if we could compress and condense them at the same time, we should still further increase their conducting power. Cagniard de la Tour has shown that a substance, for instance water, may be so expanded by heat whilst in the liquid state, or condensed whilst in the vaporous state, that the two states shall coincide at one point, and the transition from one to the other be so gradual that no line of demarcation can be pointed out;[1] that, in fact, the two states shall become one;—which one state presents us at different times with differences in degree as to certain properties and relations; and which differences are, under ordinary circumstances, so great as to be equivalent to two different states.

178. I cannot but suppose at present that at that point where the liquid and the gaseous state coincide, the conducting properties are the same for both; but that they diminish as the expansion of the matter into

a rarer form takes place by the
removal of the necessary
pressure; still, however, retaining, as
might be expected, the
capability of having what feeble con-
ducting power remains
increased by the action of heat.

179. I venture to give the following summary of the conditions
of electric conduction in
bodies, not however without fearing
that I may have omitted
some important points.

180. All bodies conduct electricity in the same manner from
metals to lac and gases, but
in very different degrees.

181. Conducting power is in some bodies
powerfully in-
creased by heat, and in others diminished, yet without our per-
ceiving 'any accompanying
essential electrical difference, either
in the bodies or in the
changes occasioned by the electricity
conducted;

182. A numerous class of bodies, insulating electricity of low
intensity, when solid, conduct
it very freely when fluid, and are
then decomposed by it.

183. But there are many fluid bodies which do not sensibly

[1] *Annales de Chimie,* xxu. pp. 127, 178.